manganese, magnesium, copper and boron; glycosaminoglycans; analgesics, anti-inflammatory agents, methylsulfonyl-methane, S-adenosyl-methionine, alpha-lipoic acid, aloe vera extract, preservatives, antioxidants, stabilizers, surfactants, anti-infective agents, enzymes, collagen type II, adjuvants, anthocyanidins, proanthocyanidins, and herbal derivatives.

Painful arthritis is associated with secondary inflammatory processes in the joint. NSAIDs have proven effective for reducing inflammation, but have gastrointestinal side effects. Proteolytic enzymes (enzymes that have the ability to break down proteins) have been shown to have anti-inflammatory activity, reduce immune complexes, modulate adhesion molecules, activate fibrinolysis, and reduce edema. Plant based enzymes such as bromelain, derived from pineapple stem and papain, derived from papaya, are activated at a temperature higher than normal body temperature and effective at an inflammatory site. Papain, prepared from the stomach of pigs, is also activated at a temperature higher than normal body temperature. Other enzymes effective against inflammation include pancreatin, trypsin, chymotrypsin and rutin. The effective dosage of the enzyme varies with body weight and frequency of administration.

In a further aspect of this invention, for those who have difficulty swallowing a large tablet, due to esophageal strictures or other pathology, a therapeutically effective solution can be administered by a suspension of the active agents in a pharmaceutically acceptable carrier to provide a liquid form to be swallowed or sprayed onto the oral mucosa. By a "pharmaceutically acceptable carrier" is meant a composition, solvent, dispersion medium, coating, delivery vehicle or the like, which can be employed to administer the compositions of the present invention without undue adverse physiological effects. A pharmaceutically acceptable carrier can be used to deliver the composition for oral, rectal, parenteral, intravenous, topical, transdermal, subcutaneous and intramuscular administration.

Although illustrative embodiments of the invention have been shown and described, a wide range of modifications, change, and substitution is contemplated in the foregoing disclosure and in some instances, some features of the present invention may be employed without a corresponding use of the other features. Accordingly, it is appropriate that the appended claims be construed broadly and in a manner consistent with the scope of the invention. The above-mentioned patents are hereby incorporated by reference.

This invention is further illustrated by the following examples which are to be regarded as illustrative only, and in no way limit the scope of the invention.

EXAMPLE 1

A 58 year old male with diagnosed osteoarthritis of both knees was started on a commercial composition of glucosamine hydrochloride 500 mg and chondroitin sulfate 400 mg taken three times a day for six months. The relief from pain and limitation of motion was inconsistent. A new composition, of the invention, comprising zinc acetate 20 mg and glucosamine sulfate 500 mg coated with polyvinylpirrolidone 7 mg taken three times a day was commenced. By the 21^{st} day of treatment with the new formulation, the knee pain subsided and range of motion was unrestricted. A maintenance dose of glucosamine sulfate 500 mg and zinc acetate 10 mg was then continued for six months and the pain relief and range of motion of the knees were maintained.

EXAMPLE 2

A 59 year old male with diagnosed osteoarthritis of the right foot with severe pain on running. He started on a commercial composition of a glucosamine complex (glucosamine hydrochloride, N-Acetylglucosamine and glucosamine sulfate) 500 g and chondroitin sulfate 400 mg, taken three times a day for three months. The pain relief was inconsistent and required supplemental analgesics in order to obtain relief. A new composition, of the invention, comprising zinc acetate 20 mg and glucosamine sulfate 500 mg coated with polyvinylpirrolidone 7 mg taken three times a day was commenced. By the second week of treatment with the new formulation, the foot pain subsided and he was able to run and resume his tennis playing. A maintenance dose of glucosamine sulfate 500 mg and zinc acetate 10 mg was then continued for five months and the pain relief and ability to run and play sports continued.

EXAMPLE 3

A 12 year old Weimaraner developed weakness of his hind legs which limited his ability to jump and lift his leg to urinate. He was evaluated by the College of Veterinary Medicine at Texas A&M University and started on prednisone 20 mg per day but with limited success. He was then started on the new composition, of the invention, comprising zinc acetate 20 mg and glucosamine sulfate 500 mg coated with polyvinylpirrolidone 7 mg taken twice a day. After three weeks of treatment with the new formulation, he demonstrated increased strength of his hind legs and regained his ability to lift his leg on urinating and no pain on deep palpation of the hips. He was then maintained on glucosamine sulfate 500 mg and zinc acetate 10 mg, twice a day for 11 months until his death. While on the maintenance dose he continued to demonstrate strength in his hind legs.

EXAMPLE 4

A 60 year old male with diagnosed osteoarthritis of both knees was started on a composition of glucosamine sulfate 500 mg, niacinamide 50 mg, resveratrol 1 mg, methylsulfonylmethane 25 mg, bromelain 40 mg, papain 50 mg and zinc sulfate 5 mg, taken three times a day for six months. After two weeks knee pain was markedly reduced and sensitivity over the patella was minimal. Full range of motion was achieved after three weeks. After one month the dosage was reduced to twice a day and maintained for the duration of the study.

Although illustrative embodiments of the invention have been shown and described, a wide range of modifications, change, and substitution is contemplated in the foregoing disclosure and in some instances, some features of the present invention may be employed without a corresponding use of the other features. Accordingly, it is appropriate that the appended claims be construed broadly and in a manner consistent with the scope of the invention.

What is claimed is:

1. A composition for treating arthritis in mammals by administering a therapeutically effective amount of a composition comprising:

a) an inhibitor of nitric oxide production, and

b) an aminosugar.

2. The method of claim **1**, wherein said inhibitors of nitric oxide production comprises nitric oxide synthase inhibitors comprising; arginine-based analogues, methylated arginines, substituted L-arginine, nitro-arginine, L-N^G-nitroarginine, N^G-mono-methyl-L-arginine (L-NMMA), N-nitro-L-arginine methyl ester (L-NAME), N-amino-L-arginine, N-methyl-L-arginine, N^G-monomethyl-L-arginine (L-NMA), N^G-nitro-L-arginine (L-NNA), aminoguanidine,